

## ACTIVITIES OF BIOMASS/FIBEX CRUISE OF THE UMITAKA MARU

Masaaki MURANO and Kiyoshi INOUE

The Training Ship UMITAKA MARU III belonging to the Tokyo University of Fisheries participated in the FIBEX of BIOMASS plan. Scientists aboard this scientific cruise are 19 in total from five universities and two other research organizations.

We have two legs (third and fourth legs) of the vessel for research activities in the Antarctic Ocean. In the third leg, biological and oceanographical surveys were mainly conducted on the meridional line of 125°E from 45°S to 65°S and in the neighbouring area of pack ice, and in the fourth leg on 160°E line from 52°S to 65°S and in the neighbouring area of pack ice. In both legs the visual sighting was made for marine mammals and sea birds. In addition, throughout the voyage from Tokyo to Tokyo, pollutants, such as PCBs, DDT and so forth, were measured. (p. 1-11)

## OCEANOGRAPHIC CONDITIONS OF THE SOUTHERN OCEAN ALONG 125°E AND 160°E IN THE AUSTRAL SUMMER OF 1980-1981

Noboru MATSUURA, Tsutomu MORINAGA, Juichi KATOH, Hiroh SATO,  
Yujiro SAOTOME, Isao KASUGA, Yuji MINE and Akira KITAZAWA

The oceanographic observations were carried out by the T/S UMITAKA MARU III in the Southern Ocean south of Australia during December 1980 to February 1981. In this paper, four meridional sections of the Australasian sector are inspected for the identifications of the watermass structures and the oceanic fronts. In addition, we present the geostrophic velocity fields, the thermohaline features, the zonation of the near-surface layer and the nutrient salts distributions along 125°E and 160°E. (p. 13-41)

## VERTICAL FLUX OF PARTICULATE MATTER IN THE ANTARCTIC OCEAN IN SUMMER 1981

Naoji FUJITA and Satoshi NISHIZAWA

Direct measurements of vertical flux of particulate matter using *in situ* particle collectors were carried out at three stations in the Antarctic Ocean and adjacent water. The maximum fluxes of particulate organic carbon (POC) and pheopigments were 184 mg/m<sup>2</sup>/day at 50 m depth at Stn. 51 and 1.242 mg/m<sup>2</sup>/day at 200 m depth at Stn. 77, respectively. Distinct two maxima of flux of POC were observed at 50 and 200 m depths at Stns. 51 and 77. Similar phenomena have not been observed so far in other ocean areas. The results obtained are considered to be suffered from various sources of sampling variability, and the spatial scale of the collector used were discussed in comparison with the scale of particle falling phenomena in the sea. (p. 43-52)

## DISTRIBUTION OF POC, DOC AND ATP IN THE PACIFIC SECTOR OF THE ANTARCTIC OCEAN IN SUMMER 1980-1981

Naoji FUJITA and Satoshi NISHIZAWA

The measurements of POC, DOC and ATP in seawater were carried out at 14 stations along the 125°E and 160°E lines in the Pacific sector of the Antarctic Ocean. The horizontal and vertical distributions of POC were influenced by the movements of seawater such as convergence and divergence. The developed discontinuity in concentrations of ATP was